

In the Claims:

1. (Currently Amended) An apparatus for the continuous measurement of the thickness of a coating layer of a workpiece moved relative to the apparatus, characterized by a sensor with a plurality of senders of measuring beams and a plurality of receivers for measuring beams reflected from the coating layer and/or from the ~~work piece~~. ~~The workpiece, the senders and the receivers at the sensor are being arranged in intermixed condition with one another. A another, a computer generates generating a continuous measuring signal in dependence on the two parameters of the emitted beams and received measuring beams.~~ beams, and wherein the senders and receivers lie next to one another and are collectively positioned in groupwise fashion, each group having associated with it its own source of measuring beams and having associated with it its own detector for the beams reaching the receivers, and each group having associated with it its own computer for forming a measuring signal.

2. (Canceled)

3. (Currently Amended) An apparatus according to claim 1, ~~further characterized in that~~ wherein the senders are connected with the beam source and/or the receivers are connected with the detector by way of beam conducting fibers, preferably quartz fibers.

4. (Currently Amended) An apparatus according to claim 1 ~~further characterized in that~~ wherein the sensor includes means for removing and for keeping removed contaminations from the sensitive outer surface of the sensor.

5. (Currently Amended) An apparatus integratable into a powder arm for the measurement of the thickness of a powder layer for the coating of can sheet material according to ~~claim 2, further characterized in that~~ claim 1, wherein the senders and the receivers are arranged in a sensor head and are connected by beam conducting fibers, ~~preferably quartz fibers,~~ with the associated beam source and the associated detector, that at the sensor head an exchangeable cover is provided for limiting the measuring width of the sensor when in use, which includes cleaning means for protecting the effective sensor surface, and in that the associated beam source and the associated detector are operably connected with a computer for generating a measuring signal.

6. (Currently Amended) An apparatus according to claim 5, ~~further characterized in that~~ wherein the beam source creates infrared beams.

7. (Currently Amended) An apparatus according to claim 5, ~~further characterized in that~~ wherein the cleaning means has a cleaning channel running over the effective sensor surface and whose cover is penetrated in the region of the senders and receivers.

8. (Currently Amended) An apparatus according to claim 5, ~~further characterized in that~~ wherein the beam conducting fibers have a diameter of 20 to 200 μm , ~~preferably 50 μm .~~

9. (Currently Amended) An apparatus according to claim 5, ~~further characterized in that~~ wherein the sensor head has three groups of senders and receivers, which groups are arranged in a line.

10. (Currently Amended) An apparatus according to claim 5, ~~further characterized in that~~ wherein the sensor head has a fourth group with only senders and which by means of beam conducting fibers is connected with a source of light, ~~preferably white light.~~

11. (Previously Presented) A seam covering arrangement with an apparatus according to claim 1.

12. (Previously Presented) A can welding machine with a seam covering arrangement with an apparatus according to claim 1.